Significant Figures Practice Problems

1. Convert each of the following into the correct scientific notation form.

a) 3427 3.427×10^{3}
b) 0.00456 4.56×10^{-3}
c) 123,453 1.23453×10^{5}
d) 172 1.72×10^{2}
e) 0.000984 9.84×10^{-4}
f) 0.502 5.02×10^{-1}
g) 3100.0 x 10^{2} 3.1000×10^{5}
h) 0.0114 x 10^{4} 1.14×10^{2}
i) 107.2 1.072×10^{2}
j) 0.0000455 4.55×10^{-5}
k) 2205.2 2.2052×10^{3}
l) 30.0 x 10^{-2} 3.00×10^{-1}
m) 0.982 x 10^{-3} 9.82×10^{-4}
n) 0.0473 4.73×10^{-2}
o) 650.502 6.50502×10^{2}
p) 3.03 x 10^{-1} 3.03×10^{-1}
q) 20.4 x 10^{5} 2.04×10^{6}
r) 1.29 1.29
s) 0.00565 5.65×10^{-3}
t) 1362205.2 1.3622052×10^{6}
u) 450.0 x 10^{3} 4.500×10^{5}
v) 100.0 x 10^{-3} 1.000×10^{-1}

2. Determine the number of significant figures in each of the following:

a) 3427 4
b) 0.00456 3
c) 123,453 6
d) 172 3
e) 0.000984 3
f) 0.502 3
g) 4.200 x 10^{2} 4
h) 6.14 x 10^{4} 3
i) 107.2 4
j) 0.0000455 3
k) 2205.2 5
l) 3.85 x 10^{-2} 3
m) 9.71 x 10^{-3} 3
n) 0.0473 3
o) 650.502 6
p) 6.03 x 10^{-1} 3
q) 9.06 x 10^{5} 3
r) 1.29 3
s) 0.00565 3
t) 1362205.2 8
u) 7.500 x 10^{3} 4
v) 2.000 x 10^{-3} 4
w) 546,000 3
x) 546,000 3

3. Convert each into standard form.

1.56 x 10^{4} 15,600
2.59 x 10^{5} 259,000
2.59 x 10^{3} 2,590
5.6 x 10^{-2} 0.056
6.9 x 10^{4} 69,000
4.59 x 10^{-1} 0.459
3.69 x 10^{-6} 0.00000369
1.369 x 10^{-2} 0.01369
7.369 x 10^{5} 736,900
2.09 x 10^{-3} 0.00209

4. Calculate the following. Give the answer in correct number of significant figures.

a) 43.7 − 2.341

= 41.359 = 41.4

b) 17.6 + 2.838 + 2.3 + 110.77

= 133.508 = 133.5

c) 19.6 + 58.33 − 4.974

= 72.956 = 73.0

d) 5.99 − 5.572

= 0.418 = 0.42

e) 0.004 + 0.09879

= 0.10279 = 0.103

f) 1239.3 + 9.73 + 3.42

= 1252.45 = 1252.5

g) 2.4 − 1.777

= 0.623 = 0.6

h) 532 + 7.3 − 48.523

= 490.777 = 491

5. Calculate the following. Give the answer in number of significant figures.

a) $5.01 \times 10^5 \div 7.8 \times 10^2$

$= 642.3077 = 6.4 \times 10^2$

or

640

b) $4.005 \times 74 \times 0.007$

= 2.07459 = 2

c) $453 \div 2.031$

= 223.04284 = 223

d) $27.5 \times 1.82 \div 100.04$

= 0.5002999 = 0.500

e) $2.290 \times 10^6 \div 6.7 \times 10^4$

= 34.1791 = 34

f) $1.54 \times 0.03060 \times 0.69$

= 0.032516 = 0.033 or 3.3×10^{-2}

g) $9.15 \div 4.9070$

= 1.86468 = 1.86

h) $89.3 \times 77.0 \times 0.08$

= 550.088 = 6×10^2

or

600

6. Calculate the following. Give the answer in number of significant figures.

a) $(24.6681 \times 2.38) + 332.58$

$= 58.710078 + 332.58$

$= 391.2901 = 391.3$

b) $(85.3 - 21.489) \div 0.0059$

$= 63.811 \div 0.0059$

$= 10815.4237 = 1.1 \times 10^4$

c) $(512 \div 986.7) + 5.44$

$= 0.5189014 + 5.44$

$= 5.958901 = 5.96$

d) $(2.87 \div 48.533) + 144.99$

$= 0.05913502 + 144.99$

$= 145.04913502 = 145.05$

e) $[(1.7 \times 10^6) \div (2.63 \times 10^5)] + 7.33$

$= 6.463878 + 7.33$

$= 13.79388 = 13.8$

f) $(568.99 - 232.1) \div 5.\overline{3}$

$= 336.89 \div 5.3$

$= 63.56415 = 64$

g) $(9443 + 45 - 9.9) \times (8.1 \times 10^6)$

$= 9478.1 \times 8.1 \times 10^6$

$= 7.677726 \times 10^{10} = 7.7 \times 10^{10}$

h) $(3.14 \times 2.4367) - 2.34$

$= 7.651238 - 2.34$

$= 5.311238 = 5.31$